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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,513	12/28/2000	Hideki Kanabako	81868.0024	6675

26021 7590 03/19/2002

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EXAMINER

MULLINS, BURTON S

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 03/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/750,513

Applicant(s)

KANEBAKO, HIDEKI

Examiner

Burton S. Mullins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.

- 4) ☐ Interview Summary (PTO-413) Paper No. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

  
BURTON S. MULLINS  
PRIMARY EXAMINER

### **DETAILED ACTION**

#### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Specification***

2. The disclosure is objected to because of the following informalities: Various grammatical and typographical errors appear in the specification and should be corrected. For example, p.2, lines 15-16; p.7, line 29; p.8, line 26; p.9, line 2. Appropriate correction is required.

#### ***Claim Objections***

3. Claims 2 objected to because of the following informalities: In claim 2, line 2, change "in" to --into--. On line 3, change "extending" to --extend--. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1-3 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oishi (JP 6-141512) in view of Blumenstock (US 6,313,555). Oishi teaches a magnetic levitation motor comprising: a rotor 6 having a main body formed from a magnetic member 8 and a permanent magnet 9 attached to a peripheral surface of the main body; a stator 1 disposed opposite to the rotor, the stator having a first stator winding 3 that generates a levitation control magnetic flux for controllably levitating the rotator body, a second stator 3 winding that generates a rotation magnetic flux for rotating the rotator body (see discussion of "first" radial coils and "second" levitation coils, paragraphs 4 and 8-9), and a first stator core 1 having the first stator winding 3 and the second stator winding 3; wherein the first winding 3 and the second winding 3 are wound around the salient pole sections extending from a central section of the base of core section (Figs.1, 6&8). Oishi's rotor magnets 9 further comprise a direct current magnetic field generation device that generates a magnetic flux radially spreading from the rotor to the stator.

Oishi does not teach that the first stator core is formed from a plurality of individual stator core sections.

Blumenstock teaches a magnetic bearing comprising independent "sectored" salient pole sections 224 including base members (Fig.2). In one embodiment (Fig.3) the stator core 310 is formed in a circular ring section and a plurality of salient poles radially extending toward a center of rotation from the circular ring section, and the base section of the stator core section has side faces 325/330 and a peripheral surface 335 that defines a part of an external periphery of the circular ring section of the first stator core, wherein the side faces 325/330 of the base sections of a plurality of the stator core sections are connected together to

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form the circular ring section of the first stator core. A sectored-pole-piece stator allows for each coil to be separately wound (c.3, lines 8-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Oishi and provide independent salient pole core sections per Blumenstock since separate winding of each sectored pole piece would facilitate manufacture.

Regarding claims 15-17, the product-by-process recitations are fulfilled by Oishi and Blumenstock since the claims are not limited to the manipulations of the recited steps, only to the structure implied by the steps. MPEP 2112.01 & 2113. Regarding claim 17, ring 220 in Blumenstock forms a "case".

6. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oishi (JP 6-141512) and Blumenstock (US 6,313,555) in view of Higuchi. Oishi and Blumenstock as described above substantially teach applicant's invention but do not provide two sets of magnetic bearing stator and rotor sections, per se.

Higuchi teaches a magnetic bearing including two sets of axially-spaced rotor (not numbered) and stator sections 13/13' (Fig.2), the pair of magnetic bearings being necessary support the rotor (c.2, line 20).

It would have been obvious to modify Oishi and Blumenstock and provide an additional magnetic bearing rotor/stator set per as shown in Higuchi since a pair of magnetic bearings would have been desirable to support the rotor.

Regarding claim 6, Oishi's magnets 9 comprise a plurality of segmented permanent magnets affixed to a peripheral surface of the rotor, with the two sets of plural segmented

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permanent magnets are provided on the rotator body in a manner to have mutually opposite polarities.

Regarding claim 7, Higuchi teaches two sets of magnetic bearing blocks 13/13' including radial sensors 15 on the stator and adjacent detection members (not numbered) on the rotor 12 for providing positional information into a control unit for controlling position of the rotor (c.4, lines 10-15).

7. Claims 1-6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oishi (JP 6-141512) in view of Schoeb (US 6,130,494) and Blumenstock (US 6,313,555). Oishi does not teach: 1) plural magnetic levitation motor sections (claim 4); and 2) stator cores formed from a plurality of individual stator core sections (claims 1 and 4).

Regarding (1), Schoeb teaches two magnetic levitation motor sections 3 and 4 each containing a rotor section and a stator section opposite to the rotor section, the two magnetic levitation motor sections disposed in parallel with each other in an axial direction of the rotator body (Fig.2). Two machines act to hold the shaft without contact (c.1, lines 50-57). Regarding claim 13, Schoeb also teaches permanent magnet 7 located on the stator and used to produce a constant unipolar flux spreading radially from the rotor to the stator (Fig.3; c.8, lines 21-40) for passive axial control.

Regarding (2), Blumenstock teaches a magnetic bearing comprising independent "sectored" salient pole sections 224 including base members (Fig.2). In one embodiment (Fig.3) the stator core 310 is formed in a circular ring section and a plurality of salient poles radially extending toward a center of rotation from the circular ring section, and the base section of the stator core section has side faces 325/330 and a peripheral surface 335 that

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defines a part of an external periphery of the circular ring section of the first stator core, wherein the side faces 325/330 of the base sections of a plurality of the stator core sections are connected together to form the circular ring section of the first stator core. A sectored-pole-piece stator allows for each coil to be separately wound (c.3, lines 8-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Oishi and provide a dual stator/rotor magnetic bearings per Schoeb since these would have been desirable to hold the shaft without contact; and further to provide independent salient pole core sections per Blumenstock since separate winding of each sectored pole piece would facilitate manufacture.

Regarding claim 5, ring 220 in Blumenstock forms a "casing".

Regarding claim 6, Oishi's magnets 9 comprise a plurality of segmented permanent magnets affixed to a peripheral surface of the rotor, with the two sets of plural segmented permanent magnets are provided on the rotator body in a manner to have mutually opposite polarities.

8. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oishi and Blumenstock as applied to claim 1 above, further in view of Lyons et al. (US 5,300,843).

Oishi and Blumenstock do not teach non-magnetic material on the base section.

Lyons teaches flux barriers 40 between stator sections used to isolate each electromagnet and thus allow continued operation during faults (c.2, lines 29-34).

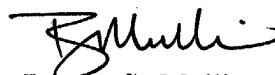
It would have been obvious to one having ordinary skill to provide flux barriers per Lyons between stator segments of Oishi and Blumenstock since continued operation of the electromagnets in fault conditions would have been desirable.

*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



Burton S. Mullins  
Primary Examiner  
Art Unit 2834

bsm  
March 14, 2002